PSImarket
The comprehensive solution for ETRM

PSI

Energy trading system for business success in energy markets

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PSI provides a configurable system as an integrated solution which can be easily and flexibly adapted to the requirements of the changing energy markets. The product PSImarket supports energy trading with all essential functions from deal registration, portfolio and risk management, analysis and optimization, schedule registration and nomination, electronic confirmation matching (ECM), regulatory reports and accounting.

In addition, PSImarket can also be used for energy sales including contribution margin accounting, sales planning, and sales controlling.

PSImarket combines the functionality of an operational trading system with planning and optimization functions.

PSImarket distinguishes itself by the following features

- High degree of integration of all related processes reduces the complexity of the IT environment and the number of required interfaces.
- Integration of functionality for operational and planning processes.
- High degree of modularity for very flexible realization and integration options.
- High flexibility and configurability: users can make modifications themselves (no expensive custom programming required).

- Various function modules can be combined and expanded for customer-specific solutions which are optimized based on customer requirements.

- Full compliance with regulatory requirements and processes.
- High degree of automation of processes by including business process management
- Support for multiple tenants
- Support for multiple products
- Support for multiple currencies
- Support for multiple languages
- Audit security
- Connectivity to data analytics functions
- Flexible workflow management
- Integration of intra-day trading
- Realization of the legal requirements regarding GDPR and regulatory reporting
- Releasability

PSImarket—Portfolio management

PSImarket—The portfolio management provides a central "Information cockpit" for all positions. It provides summaries, balancing, and matching of the physical and financial data of all procurement and delivery contracts.

The flexibility of the balancing in combination with the filter concept allows comparisons between all positions. This provides easier detection of overages and underages of individual books, portfolios, or the complete portfolio as well as statements about the financial position in form of prices, cash flow, profit, and loss. It also visualizes the physical (net position) and financial impact of individual positions.

The portfolio management module offers numerous functions for flexible balancing of the transactions as well as visualization of physical and financial aspects.

The following visualization, analysis, and configuration options are included in the standard:
- Visualization relative to a defined reference object
- Flexible and efficient (also hierarchical) filter mechanism
- Selection of the displayed target series from target series which are already predefined in the system
- Definition of free target series based on one or several source series
- Visualization modes "Sum" (comparison of sales and procurement) and "Difference" (balancing of sales and procurement positions)
- Table and chart visualization
- Multi-chart and multi-axes visualization

Both table and graph displays are available for visualization. For graphic displays, line graphs as well as stacked graphs are integrated in the system. Visualization with multiple axes and visualization with multiple charts can also be selected. The parameterization of an portfolio analysis or evaluation can be saved as a definition which can be easily reused later with absolute or relative time settings.

An efficient batch process provides updates for the defined evaluations. This results in very high performance for processing massive data volumes.

Trading support

- Price calculator

The price calculator module generates trading suggestions based on products traded in the market; usually the objective is the closing of an open position which can be supplied to the module from the portfolio management or any individual contract. The products and transactions which can be used for this purpose can be configured.

Several breakdown modes are available for controlling the algorithm; they can be parameterized depending on the desired risk level. This not only supports volume-neutral procurement coverage but also overage and underage (which can be limited); depending on the situation, this results in significantly more profitable trading suggestions.

Procurement

The new "Procurement" module is the link between portfolio management and strategic, structured procurement.

In portfolio management, the quantities to be procured for various portfolios are determined. These quantities can be reduced to the quantity to be hedged (hedge basis) by deducting certain partial quantities, e. g. own production. The remaining quantities are stocked up with standard tradable products accross several sales portfolios, whereby all the options of the PSImarket price calculator are available.

Procurement strategies can be defined for planning the actual procurement of standard tradable products. A procurement strategy is the configuration of the quantities to be procured in the respective procurement period for respective front years. A procurement period is broken down into months, quarters and half-years of the respective front years. For example, a procurement strategy can demand that 75 % of the quantities are bought ahead at the latest one calendar year prior to time of delivery.

The quantities to be bought ahead in order to implement the procurement strategy are reported by the system and need to be successively purchased by the traders on the wholesale market. The trading transactions are implemented as procurement contracts and distributed to the sales books using the distribution tool, so that their open position is successively reduced in line with the procurement strategy. Typically, the open position is not reduced to zero, in which case the covering of a quantitatively defined residual on the spot market is part of the procurement strategy.

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Summary of key features
+ Central information cockpit
+ Support for multiple commodities
+ Book and portfolio structure can be freely defined
+ "Virtual portfolio" for visualization of possible scenarios
+ Comprehensive and flexible evaluation features

PSImarket—Trading

PSImarket—Trading is a standard configuration of PSImarket which includes all required trading-related modules of the overall system. For both procurement and own trading activities, PSImarket supports a wide range of tasks from capturing trades to auditing and supports front, middle, and back office processes. A variety of individual configurations can be set up task-specifically using the key modules which are described in the following sections as well as other available modules. PSImarket even supports complete and seamless integration of processes for different utility types.

Contract management

The contract management is the core component of PSImarket. It supports modeling of a variety of contractual arrangements and agreements. These include standard contracts, derivatives, and "classic" contracts with complex energy-market terms for multiple products.

The contract management features a range of predefined contract models including product-specific contract models. For example, fixed price contracts (including rates), index-based contracts and forwards, physical and financial options with fixed or index-based pricing, spot trading transport contracts, futures with margin calculation and associated aggregate contracts, network capacity contracts, structured contracts, different types of swaps, and a number of special contracts such as service contracts, tranche contracts and PPAs (Power Purchase Agreements) are included.

PSImarket supports the contract models for the DACH (or: German/Austrian/Swiss) gas market. For that reason, all the contracts which are specific to the gas market are also included; for example, supply, sales, infeed, outfeed, storage and balancing group contracts.

Visualization of contracts

A unified user interface facilitates management of the variety of contracts; it is based on a core contract module. The user interface visualizes only the specific contract data and those attributes which are relevant for the context of each contract.

Special and flexible masks for capturing short-term spot trades are also provided.

For frequent standard transactions, a main data entry tab with an easy-to-use mask for the required attributes is available for fast data entry.

For entering additional contract details, for example in the middle office, the usual user interface is displayed again.

Product definitions

By product definitions, PSImarket enables standardization and simplification of the work processes. It also supports default values settings for individual product parameters in order to ensure simple and clear handling of standard products.

Emission trading

PSImarket supports the entire emission trading process. This includes entry and management of certificates, tradable derivatives, emission trading accounts, and trading periods as well portfolio visualization of the emission trading.

Certificates can be assessed based on (market) price curves as well as rebooked manually and automatically. The generation of specific emission trading- documents and "Banking and borrowing" are also supported.

Risk management and controlling

All trading activities involve risk which can be very substantial due to price volatility. PSImarket implements methods and procedures for risk assessment and management which effectively support the minimization of risk in trading activities.

The evaluation methods described below represent only a small fraction of the comprehensive risk assessment, management, and control functions of PSImarket.

Price forward curves (PFC) play an important role in risk assessment procedures and indicators. PSImarket provides comprehensive support for these.

For mark-to-market, all transactions are evaluated against the market or any contract-specific price curve which can be selected by the user. The value-at-risk is also calculated using several procedures.

Of course, these procedures also include the evaluation of options using option type-specific standard procedures (Black, Black-Scholes) as well as advanced models such as trinomial trees for the evaluation of swing options.

Other implemented standard functions are the evaluation of open positions, sensitivity analysis, determination of credit risk (based on netting), and determination of the risk exposure.

A comprehensive and highly flexible limit system has been implemented for risk controlling. It defines, allocates, and monitors physical and financial limits for the trading activities and the trading partners. The system supports the "four-eye" principle, transaction confirmation for deals depending on the financial exposure, and other special functions for effective risk control.

Capacity management

The capacity management module supports the administration, evaluation, and monitoring of booked capacities and their utilization. As such, it is also part of the risk management. The capacity management visualizes congestions published by the transmission system operators, the capacities requested by the trading, and the capacities used by the actual physical positions.

To provide an overview of the booked transmission channels, the available, booked, and utilized capacities are visualized in comparisons. If needed, booked capacities can be explicitly assigned to congestions.

Scheduling and balancing group management

The balancing group management and accounting module implements the German MaBiS (TSO-area) rules and the associated data exchange between business partners and network operators. This includes management of balancing group-specific data such as EIC party code, contact persons, balancing and sub-balancing group structures, and production and consumption balancing groups for infeeds and outfeeds.

Electricity schedule management

PSImarket creates schedules for control zones, power plant downtimes, and capacities according to the applicable rules; the schedules can be created manually or automatically using batch jobs.
ESS (XML) and KISS (Excel) are used as schedule formats. The schedules are managed in an easy-to-read tree structure. Depending on the configuration, schedules can be sent automatically to the network operator by e-mail or stored on a FTP server. The schedule registrations are internally versioned and archived.
PSImarket provides a registration assistant to support manual creation of schedules.

The schedules and response messages of the network operators including send and confirmation times are managed in the system. The responses of the networks operators are entered in the system and in case of complaints by the network operator, the schedules are marked accordingly. This ensures faster error detection.
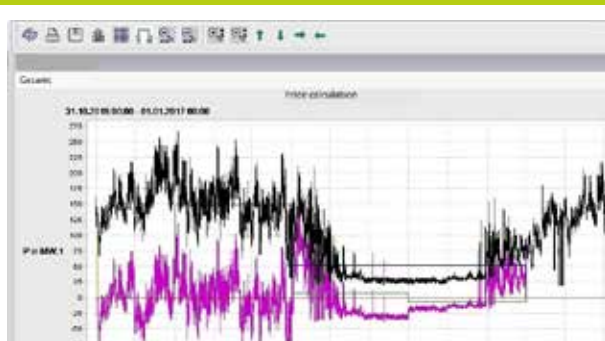The schedules are created in a black box; however, for better coordination and tracing of possible deviations in the schedule registration, a tool for step-by-step tracing is provided.
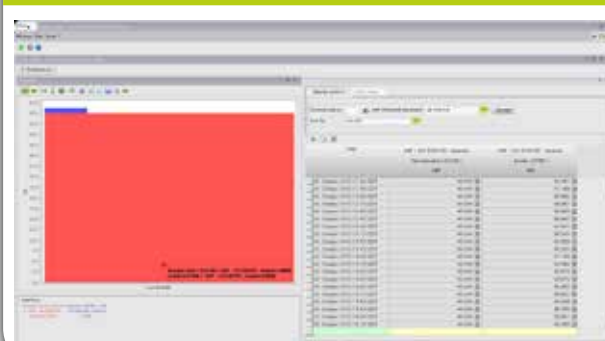
Gas nomination

For gas market nominations, PSImarket provides support for all common business transactions in all commonly used formats. Extended configuration of specific formats such as for business partner nomination is also possible.

Nominations are forwarded by email. The system supports nominations to the relevant market region coordinators or counterparts. In order to simplify the nomination process, PSImarket includes a nomination assistant.

Load profile price calculator

Time series editor

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Summary of key features

+ Complete support for front, middle, and back office
+ Comprehensive contract management
+ Generation and visualization of diverse contract types
+ Scheduling and balancing group management
+ Capacity management
+ Comprehensive risk management and controlling
+ Support for reporting in compliance with regulatory reports

PSImarket—Sales

The offer calculation module supports key account managers in the calculation of supply offers for large, commercial, and bundling customers. The module also provides cost and profit calculation as well as a multi-level contribution margin calculation. It is available for electricity and gas sales contracts.

Scope of services

For preparing offers, the module supports the following:
- Setup of contract framework
- Assignment of one or several connections of the selected business partner to the offer
- Contract calculation including:
  - Allocation of revenue positions (commodity price, capacity price, base price) and individual revenue positions
  - Allocation of individual cost positions such as shared sales costs
  - Roll out of load profile for the term of the contract based on the forecast method specified for the connection including holiday rates and summer/winter time
  - As an alternative, the load profile for term of the contract can also be provided by the customer
  - Calculation of the fees required by law (concession fee, cogeneration fee, EEG—German Re-newable Energy Act fee for electricity)

- Calculation of the network transmission fees; the fees are calculated based on the price sheets of the involved network operators. The assignment is automatic based on the postal code/network operator assignment table.
- Calculation of the energy costs based on
  - Price curve (HPFC)
  - Hedging tool (load profile composed of standard products of the exchanges as well as price determination)
  - Formula
  - Booking group module (debiting of the sales volume from the volume of the procurement contracts including price calculation)
  - Specified fixed price
- Calculation of the contribution margin

Visualization of results

A detailed contribution margin calculation in form of a result sheet is provided on per-contract or per-connection basis. Other contract calculations are stored in the historian.

Handling

The workflow of a contract can be visualized by a status graph. The price suggestion function of the system suggests prices for commodity price, capacity price, and base price based on a profit margin specification. The price analysis visualizes the resulting revenue in tables or graphs based on variations of the commodity prices and capacity prices. Contract copies allow calculation and comparison of different offer variants.

The price rules object is used for managing standard prices and using them in contracts.
The so-called delivery point assistant supports simple import of stations based on Excel lists.
A so-called current calculation enables the re-calculation of a contract on the basis of the measured current load profile; this allows a comparison of the result sheet with the offer at the time of its generation.

Offer calculation

Offer detail overview

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Summary of key features
- **+** Offer support for large, commercial, and bundling customers, tariff and residential customers
- **+** Cost and revenue calculation
- **+** Multi-level contribution margin calculation
- **+** Integration of the ene't database
- **+** Delivery location assistants for fast calculation
- **+** Contract life cycle management
- **+** Generation of contract documents

PSImarket—Accounting

PSImarket accounting is a powerful accounting system. As an integrated tool for calculating and preparing financial data, this solution supports workflow-based accounting of every transaction managed in the system such as compilation of a client invoice, invoicing, and invoice auditing as well as the transfer to a booking system via standard interface..

Accounting

The following tasks are supported as part of the accounting:
- Accounts payable (debit), accounts receivable (credit), and general ledger accounts (profit and loss) for accounting purposes
- Automatically generated payments and associated cost type bookings for all payment dates in the contract
- Correction bookings
- Verification of generated bookings against previous calculation results and booking periods
- Contract cancellations by automatic creation of offset bookings
- Compliance with accounting regulations related to foreign countries

The accounting also includes all ancillary costs and revenue positions which can be flexibly defined in the system, and applies any applicable discounts. Fiscal compliance and invoicing in foreign currencies are also included.

Invoicing

PSImarket accounting also includes an optional invoicing feature. Invoices are generated based on the payment terms defined in the contract. The due invoices including data verification can be generated automatically in defined time intervals (e.g. monthly). Additional invoice functions:
- Generation of simulated incoming and outgoing invoices
- Preparation of outgoing invoices based on business partner information (tax information, netting options) and grouping information (cost types)
- Generation of invoices for advance payments
- Flexible design of invoice layout (also business partner-specific)
- Verification and modification of the invoice
- Designation of the volumes associated with cost bookings
- Change tracking
- Verification of incoming payments

Integration of the accounting in the existing system environment

The accounting module can either be operated as a fully integrated accounting system including invoicing or be used in a reduced configuration for processing and exporting items to an external accounting system. In both cases, the invoice positions and cost type bookings can be transferred to a general ledger such as SAP. The accounting system provides simulation of incoming invoices for verification. It is also used as source for checking the collaterals as part of the credit risk calculation.

Cost type bookings

Invoice document

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Summary of key features

+ Powerful accounting system
+ Completely integrated in the overall system
+ Work flow-based accounting of the transactions managed in the system
+ Flexible design of invoice layout
+ Change tracking
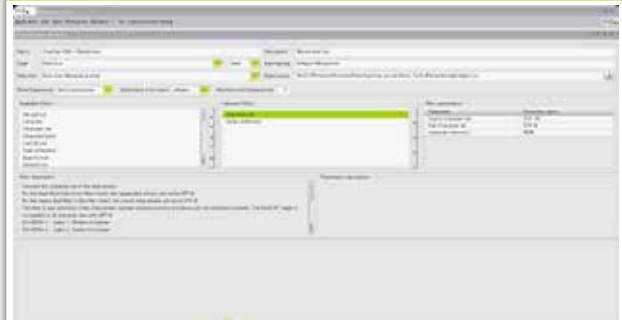+ Verification of incoming payments

Easy to use

Even complex processes must be easy to use. Therefore, we pay particular attention to the design and usability of the user interfaces and dialogs.
The continuous communication with you provides the basis for new enhancements and developments.

+ Clearly structured menu design
+ Graph and table visualization
+ Individual adaption of the visualization
+ Comprehensive navigation functions
+ Multi-language user interfaces
+ Configurable contract cockpit

Integration and openness

Our interface development experience over many years is the basis for a future-proof IT infrastruc-ture. The usage of standard interfaces and the definition of new standards make the data exchange with existing IT systems secure and stable.

+ Standard interfaces to numerous CRM, EDM, business systems and algo trading systems
+ Financial accounting and invoicing
+ Sales
+ Optimization
+ Import of exchange prices, delivery schemes, contracts, weather forecasts, and counter points.

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Your benefits
+ High degree of integration of all related processes reduces the complexity of the IT environment and the number of required interfaces.
+ High degree of process automation
+ Integration of functionality for operational and planning processes.
+ High degree of modularity for very flexible realization and integration options. Various function modules can be combined and expanded for customer-specific solutions which are optimized based on the customer requirements.
+ High flexibility and configurability: users can make modifications (no
+ custom programming required).
+ Full compliance with regulatory requirements and processes.

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